



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/799,250	03/12/2004	Arne C. Benson	FSI0135/US	8204

7590 02/26/2007
Paul John Parins
Kagan Binder, PLLC
Maple Island Building
221 Main Street North, Suite 200
Stillwater, MN 55082

EXAMINER

RIVELL, JOHN A

ART UNIT	PAPER NUMBER
----------	--------------

3753

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/799,250

Applicant(s)

BENSON ET AL.

Examiner

John Rivell

Art Unit

3753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11/24/06 (amendment).
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,5,7,9-13,15,16,18 and 20-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,5,7,9-13,15,16,18 and 20-24 is/are rejected.
- 7) ☒ Claim(s) 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 November 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Applicant's arguments with respect to claims 1, 3, 5, 7, 9-13, 15, 16, 18 and 20, in the response filed November 24, 2006, have been considered but are moot in view of the new ground(s) of rejection.

Claims 2, 4, 6, 8, 14, 17 and 19 have been canceled. New claims 21-24 have been added. Thus claims 1, 3, 5, 7, 9-13, 15, 16, 18 and 20-24 are pending.

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 22 and 23 provides for the use of the "rotary union", but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claims 22 and 23 are further rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claims 3, 7, 9, 18, 20 and 24 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 3, 7, 9, 18 and 20, each of these claims are no dependent on a canceled claim and are thus indefinite. In the action below, these claims are treated as if properly dependent on the nearest preceding independent claim.

Regarding claim 24, in lines 21-25 specify a "spacer" element defining an "annular gap" (lines 23-24) in addition to the "annular gap" defined earlier in lines 6-7. In line 24, the current recitation of "the gap" appears indefinite as it is unclear which "gap" this recitation is referring to.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 5, 9, 11, 12, 16, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zierden in view of Jen.

The patent to Zierden et al., in figure 2 for example, discloses a "rotary union, comprising: a housing (13) having a fluid path (33) through which a fluid can be

conveyed through the housing; a rotor (11) having a fluid path (32) through which a fluid can be conveyed through the rotor, wherein the rotor (11) is rotatably coupled (via bearing(s) 12a) to the housing (13); at least one (at balls 12a)... bearing interposed between a portion of the rotor (11) exterior and a portion of the housing (13) interior to rotatably couple the rotor (11) to the housing (13); a post (28) having a fluid path (33) through which a fluid can be conveyed through the post (28), said post (28) being positioned in the rotary union in a manner effective to help fluidly couple the rotor fluid path (32) and the housing fluid path (33) such that a fluid can be transferred between the housing (13) and the rotor (11) via the post fluid path (33); and an annular gap (36) surrounding at least a portion of the post (28), wherein the annular gap (36) constitutes at least a portion of a drain pathway (to drain port 37) through which a portion of fluid conveyed through the housing fluid path is drained from the rotary union; wherein the at least one... bearing (12a) is in fluid communication with the drain passageway (37)" as recited in claim 1.

Thus the patent to Zierden discloses all the claimed features with the exception of having an "unlubricated" bearing element.

The patent to Jen discloses that it is known in the art to employ unlubricated bearings 56, made of ceramic material, for the purpose of simplifying the system requirements by utilizing bearing elements that require no lubrication and thus will not fail upon lubrication failure. Additionally, any lubricant that would otherwise have entered the fluid conducted through the system simply because of its presence, will not now be a factor in utilizing the device as it is not present.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Zierden unlubricated bearing elements for the purpose of utilizing bearing elements that require no lubrication and thus will not fail

upon lubrication failure as recognized by Jen. Additionally, any lubricant that would otherwise have entered the fluid conducted through the system simply because of its presence, will not now be a factor in utilizing the device as it is not present.

Regarding claim 5, Zierden et al. discloses a "rotary union, comprising: a housing (13) having a base portion (at the lower end of element 13 to which hinge plate 17 is attached); a rotor (11) having a first end positioned at least partially in the housing (13) interior, wherein the rotor (11) is rotatably coupled (via bearing(s) 12a) to the housing (13); at least one... bearing (12a) interposed between a portion of the rotor (11) exterior and a portion of the housing (13) interior to rotatably couple the rotor (11) to the housing (13); a post (28) that extends from the base (lower) portion of the housing (13) at least partially into a chamber (at entrance end 20) in the rotor (11), said chamber being oversized relative to the post (28) such that an annular gap (36) extends along a length of the post (28) between the post (28) and the rotor (11); a first fluid port (32 or 33) associated with the housing (13) through which a fluid can exit or enter the rotary union; a second fluid port (33 or 32) associated with the rotor (11) through which a fluid can exit or enter the rotary union; a fluid pathway extending through the rotary union at least between the first and second fluid ports, said fluid pathway comprising first and second pathway portions, wherein the first pathway portion extends through the post (28), the second pathway portion extends through the rotor (11), and wherein the first pathway portion is in fluid communication with the second pathway portion via a juncture inside the rotor chamber (at entrance end 20); and a drain pathway (to drain port 37) having an inlet (at the upper section of gap 36) inside the rotor chamber (at the entrance end 20) proximal to said juncture, wherein the annular gap (36) between the post (28) and the rotor (11) constitutes at least a portion of the drain pathway; wherein the at least one... bearing (12) is in fluid communication with the drain passageway (37)" as recited.

Thus the patent to Zierden discloses all the claimed features with the exception of having an “unlubricated” bearing element.

The patent to Jen discloses that it is known in the art to employ unlubricated bearings 56, made of ceramic material, for the purpose of simplifying the system requirements by utilizing bearing elements that require no lubrication and thus will not fail upon lubrication failure. Additionally, any lubricant that would otherwise have entered the fluid conducted through the system simply because of its presence, will not now be a factor in utilizing the device as it is not present.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Zierden unlubricated bearing elements for the purpose of utilizing bearing elements that require no lubrication and thus will not fail upon lubrication failure as recognized by Jen. Additionally, any lubricant that would otherwise have entered the fluid conducted through the system simply because of its presence, will not now be a factor in utilizing the device as it is not present.

Regarding claim 9, in Zierden et al., “at least two bearings (12a) are interposed between a portion (21) of the rotor (11) exterior and a portion (24) of the housing (13) interior” as recited.

Regarding claim 11, in Zierden et al., as disclosed, utility is in a “fluid delivery system comprising the rotary union of claim 5, comprising: a source of fluid (attached to inlet 11), wherein the first fluid port (32) is fluidly coupled to the source of fluid; and a rotating point of use (at outlet conduit 35), wherein the second fluid port (33) is fluidly coupled to the rotating point of use” as recited.

Regarding claim 12, in making and/or using the device disclosed in Zierden et al. one necessarily performs a “method of using the rotary union of claim 5, comprising: fluidly coupling the first fluid port (32) to a source of process fluid; fluidly coupling the

second fluid port (33) to a rotational point of use (35); and transferring process fluid from the source of process fluid to the rotating point of use, wherein while the process fluid is being transferred to the rotating point of use a portion (e.g. that portion which leaks past seal 14) of the process fluid transferred into the rotary union is drained from the rotary union through the drain pathway (37)" as recited.

Regarding claim 16, in making and/or using the device disclosed by Zierden et al., one necessarily performs a "method of making a rotary union comprising: providing: a housing (13) having a fluid path (33) through which a fluid can be conveyed through the housing (13); a rotor (11) having a fluid path (32) through which a fluid can be conveyed through the rotor (11); a post (28) having a fluid path (33) through which a fluid can be conveyed through the post (28); at least one... bearing (12a); positioning the post (28) in the rotary union in a manner effective to help fluidly couple the rotor fluid path (32) and the housing fluid path (33) such that a fluid can be transferred between the housing (13) and the rotor (11) via the post fluid path (33); rotatably coupling the rotor (11) to the housing (13 via bearing(s) 12a) such that an annular gap (36) surrounds at least a portion of the post (28), wherein rotatably coupling the rotor to the housing comprises interposing the at least one... bearing between a portion of the rotor exterior and a portion of the housing interior wherein the annular gap (36) constitutes at least a portion of a drain pathway (to drain port 37) through which a portion of fluid conveyed into the rotary union is drained from the rotary union and wherein the at least one... bearing is in fluid communication with the drain passageway (37)" as recited.

Thus the patent to Zierden discloses all the claimed features with the exception of having an "unlubricated" bearing element.

The patent to Jen discloses that it is known in the art to employ unlubricated bearings 56, made of ceramic material, for the purpose of simplifying the system

requirements by utilizing bearing elements that require no lubrication and thus will not fail upon lubrication failure. Additionally, any lubricant that would otherwise have entered the fluid conducted through the system simply because of its presence, will not now be a factor in utilizing the device as it is not present.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Zierden unlubricated bearing elements for the purpose of utilizing bearing elements that require no lubrication and thus will not fail upon lubrication failure as recognized by Jen. Additionally, any lubricant that would otherwise have entered the fluid conducted through the system simply because of its presence, will not now be a factor in utilizing the device as it is not present.

Regarding claim 20, in making and/or using the device disclosed by Zierden et al., one necessarily further performs a method step of providing "at least two bearings (12a) interposed between a portion (21) of the rotor (11) exterior and a portion (24) of the housing (13) interior" as recited.

Regarding claim 21, in making and/or using the device of Zierden, as modified by Jen, one necessarily causes "a process fluid to be conveyed from a source of process fluid, through the rotary union, and to a rotating point of use, wherein while the process fluid is being conveyed to the rotating point of use a portion (e.g. that portion that leaks past seal 14) of the process fluid conveyed into the rotary union is drained from the rotary union through the drain pathway (37) as recited.

Regarding applicant's remarks concerning the application of Zierden above, the argument that in Zierden the bearing is not in communication with the drain passageway is unpersuasive in view of the clear disclosure of a drain passageway 37 utilized to drain fluid that has leaked past seal 14 to atmosphere. Moreover, in certain circumstances, such as when drain passage 37 becomes clogged or overfill with process fluid there is

no reason to presume that fluid will not reach the bearings 12A. That is, just as in applicants device, should the drain passage become impassable for fluid, fluid will back up in the drain passage and eventually contact the bearing.

As for the device of Zierden utilizing lubricated bearings, and this teaching apparently being relied on as to "teach away" from utilizing unlubricated bearings, this teaching, by itself and in view of no other may in fact lead one to utilize lubricated bearings. However, in view of Jen, which specifically teaches the utilization of unlubricated bearings to simplify the assembly by utilizing bearing elements that require no lubrication and thus will not fail upon lubrication failure and the result that any lubricant that would otherwise have enter the fluid conducted through the system simply because of its presence, will not now be a factor in utilizing the device as it is not present leads one of ordinary skill in the art to appreciate and utilize unlubricated bearings for that purpose.

Claims 3, 7 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zierden et al. in view of Jen, as applied to claims 1, 5, 9, 11, 12, 16, 20 and 21 above, further in view of Katsuhiko et al. (JP-11101250 cited by applicant).

The patent to Zierden et al., as modified by Jen, discloses all the claimed features including having "ball bearings made with material comprising ceramic material (taught by Jen)" but lacks having "and inner and outer races made with material comprising hardened stainless steel".

The document to Katsuhiko et al. discloses that it is known in the art to employ "ceramic" material balls 4 and "hardened stainless steel" bearing races at 2, 3 for the purpose of providing a ball bearing to reduce the occurrence of oscillation of an irrotational synchronous component, suppress the occurrence of fretting damage and to further reduce the generation of torque and the torque fluctuation.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Zierden et al., as modified by Jen, "hardened stainless steel" material ball races, in place of the materials of the races of Zierden et al. as modified by Jen, for the purpose of providing a ball bearing to reduce the occurrence of oscillation of an irrotational synchronous component, suppress the occurrence of fretting damage and to further reduce the generation of torque and the torque fluctuation as recognized by Katsuhiko et al.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zierden in view of Jen, as applied to claims 1, 5, 9, 11, 12, 16, 20 and 21 above, further in view of Takeda (U.S. Pat. No. 5,203,592 cited by applicant).

The patent to Zierden et al., as modified by Jen, discloses all the claimed features with the exception of having "post exterior side region (having) one or more surface discontinuity".

The patent to Takeda discloses that it is known in the art to employ "surface discontinuities" at 25 in the valve body and 23 in the interiorly extending shaft for the purpose of forming a labyrinth seal at the juncture of the extending shaft and valve body precluding fluid leakage from the valve body.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Zierden et al., as modified by Jen, "surface discontinuities" along either the surface of the shaft or body where these parts overlap for the purpose of forming a labyrinth seal at the juncture of the extending shaft and valve body precluding fluid leakage from the valve body as recognized by Takeda.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Raley in view of Jen.

The patent to Raley, in figure 2 for example, discloses a "rotary union, comprising: a housing (20); a rotor (generally at 30) having a first (lower) end positioned at least partially in the housing (20) interior, wherein the rotor (30) is rotatably coupled to the housing (20) via bearing(s) 7, 8); at least one... bearing (38, 39) interposed between a portion of the rotor (30) exterior and the housing (20) interior to rotatably couple the rotor (30) to the housing (20); a post (the extreme lower end of rotor 30 at 36) that extends from the first (lower) end of the rotor (30) at least partially into a chamber (defined by recess 24) in the housing (20), said chamber (at 24) being oversized relative to the post such that an annular gap (shown at the exterior peripheral portion of the lower end 36 of the rotor and the vertical peripheral wall of chamber 24) extends along a (vertical) length of the post between the post and the housing (20); a first fluid port (25) associated with the housing (20) through which a fluid can exit or enter the rotary union; a second fluid port (within rotor 30) associated with the rotor (30) through which a fluid can exit or enter the rotary union; a fluid pathway extending through the rotary union at least between the first and second fluid ports, said fluid pathway comprising first and second pathway portions, wherein the first pathway portion extends through the housing (20), the second pathway portion extends through the post, and wherein the first pathway portion is in fluid communication with the second pathway portion via a juncture inside the housing chamber; and a drain pathway (to drain port 35) having an inlet inside the housing chamber (24) proximal to said juncture, wherein the annular gap (23) between the post and the housing constitutes at least a portion of the drain pathway; wherein the at least one... bearing is in fluid communication with the drain pathway (35)" as recited in claim 13.

Thus the patent to Raley discloses all the claimed features with the exception of having an "unlubricated" bearing element.

The patent to Jen discloses that it is known in the art to employ unlubricated bearings 56, made of ceramic material, for the purpose of simplifying the system requirements by utilizing bearing elements that require no lubrication and thus will not fail upon lubrication failure. Additionally, any lubricant that would otherwise have entered the fluid conducted through the system simply because of its presence, will not now be a factor in utilizing the device as it is not present.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Raley unlubricated bearing elements for the purpose of utilizing bearing elements that require no lubrication and thus will not fail upon lubrication failure as recognized by Jen. Additionally, any lubricant that would otherwise have entered the fluid conducted through the system simply because of its presence, will not now be a factor in utilizing the device as it is not present.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Raley in view of Jen, as applied to claim 13, above, further in view of Katsuhiko et al. (JP-11101250 cited by applicant).

The patent to Raley, as modified by Jen, discloses all the claimed features, including having "ball bearings made with material comprising ceramic material" (as taught by Jen, but lacks having "and inner and outer races made with material comprising hardened stainless steel").

The document to Katsuhiko et al. discloses that it is known in the art to employ "ceramic" material balls 4 and "hardened stainless steel" bearing races at 2, 3 for the purpose of providing a ball bearing to reduce the occurrence of oscillation of an irrotational synchronous component, suppress the occurrence of fretting damage and to further reduce the generation of torque and the torque fluctuation.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Raley, as modified by Jen, "hardened stainless steel" material ball races, in place of the materials of the and races of Raley, as modified by Jen, for the purpose of providing a ball bearing to reduce the occurrence of oscillation of an irrotational synchronous component, suppress the occurrence of fretting damage and to further reduce the generation of torque and the torque fluctuation as recognized by Katsuhiko et al.

Regarding applicants remarks concerning the above as they may apply, the document to Katsuhiko et al. is not relied on to show prior art of an unlubricated bearing nor a bearing element in fluid communication with a fluid drain path. Unlubricated bearings are taught by Jen, which utilized ceramic materials for the ball of the bearing and a metal, as cross hatched (as per PTO standards; M.P.E.P. 608.02) and in view of Katsuhiko et al. one is taught to employ ceramic material as the ball and stainless steel material as the race(s) of the bearing.

Claim 23 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any


Art Unit: 3753

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Rivell whose telephone number is (571) 272-4918. The examiner can normally be reached on Mon.-Thur. from 6:30am-5:00pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eric Keasel can be reached on (571) 272-4929. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


John Rivell
Primary Examiner
Art Unit 3753

j.r.